

02-25-04

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **LIU, George**

Group Art Unit:

Filed: **December 11, 2003**

Serial No.: **10/733,023**

For: **DOOR JAMB END CAP AND METHOD OF INSTALLATION THEREFOR**

Mail Stop – Petitions
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

February 18, 2004

PETITION TO MAKE SPECIAL UNDER 37 C.F.R. 1.102(d)

Dear Sir:

This is a Petition to Make Special the above-identified patent application. The basis for this petition is prospective manufacture of Applicant's invention. In accordance with MPEP 708.02 I, a statement under 37 C.F.R. 1.102(d) by the attorney of record, on behalf of Applicant, explaining the conditions and circumstances of prospective manufacture of Applicant's invention is attached hereto.

In view of the above, the attorney of record respectfully requests that this Petition to Make Special be granted and the examination of the application be advanced.

02/27/2004 JBALINAN 00000084 10733023

01 FC:1460

130.00 OP

Date:

02/24/04

Respectfully submitted,

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Reg. No. 50,177

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Attorneys for Applicant

STATEMENT FOR PETITION TO MAKE SPECIAL UNDER 37 C.F.R. 1.102(d)

Prospective Manufacture of Applicant's Invention:

Applicant respectfully alleges that:

(A) the prospective manufacturer is in possession of sufficient presently available capital approximately in the amount of two (2) million U.S. dollars (USD\$2,000,000), and facilities, including, but not limited to, wood molding machines, plastic injection motors, panel gluing machines, injection molding machines, and priming and painting machines, in which to manufacture the invention in quantity.

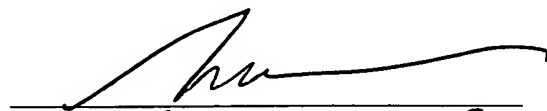
(B) the prospective manufacturer will not manufacture, or will not increase present manufacture, unless certain that the patent will be granted;

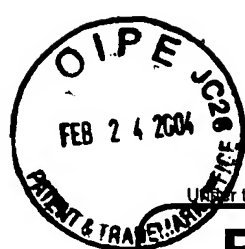
(C) the prospective manufacturer obligates itself, to manufacture the invention, in the United States or its possessions, in quantity immediately upon the allowance of claims or issuance of a patent which will protect the investment of capital and facilities; and

(D) the Applicant has caused to be made through Applicant's attorneys of record a careful and thorough search of the prior art, and also has a good knowledge of the pertinent prior art.

Applicant has enclosed one copy of each of the references deemed most closely related to the subject matter encompassed by the claims.

Respectfully submitted,


By: Ashish D. Patel
Position: Attorney for Applicant
Date: 02/24/04



FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 130.00

Complete if Known

Application Number	10/733,023
Filing Date	12-11-2003
First Named Inventor	LIU, George
Examiner Name	
Art Unit	
Attorney Docket No.	22920-RA

METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit
Account
Number
Deposit
Account
Name

The Director is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Credit any overpayments

☐ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) (\$) 0

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims	Fee from below	Fee Paid
Total Claims	-20** =	X	
Independent Claims	-3** =	X	
Multiple Dependent			

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$) 0

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for ex parte reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	130.00
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 130.00

SUBMITTED BY

Name (Print/Type)	Ashish D. Patel	Registration No. (Attorney/Agent)	50,177	Telephone	770-541-7444
Signature		Date	02/24/04		

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GB 1484091
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A5E
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**(54) Preservative treatment of
timber in installed windows and the
like**

(57) A method for protective
treatment of timber in existing
constructions such as installed
window frames and door frames. The
intention of the treatment method is
to protect timber exposed to fungal
decay, or already decayed timber, for
longer periods of time by supplying a

wood preservative and by eliminating
and preventing climatic conditions
which further the growth of rot.
According to the method holes are
formed in the wood and a wood
preservative is supplied to the wood
via these, preferably by injection under
pressure. The holes are left open when
the preservative has been applied and
an efficient release of moisture is
obtained hereby. The treated parts are
then covered with mouldings or
profiles, preferably of plastic material.

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SPECIFICATION

Preservative treatment of timber in installed windows and the like

The present invention relates to a method for preservative treatment of timber in existing constructions, e.g. installed window jambs and door frames. The invention relates to a method for remedial/reconditioning treatment of decayed or poorly protected timber in such constructions and the method comprises forming cavities in the parts concerned, applying a wood preservative in the timber through the cavities and covering of the thus treated parts with mouldings or profiles.

In the last few years the problem of fungal decay in installed window joinery has been recognised in Sweden and other countries. These problems originate from the fact that the timber in the constructions was not protected against rot originally or that the protection was inferior. The problems have become so serious that measures must be taken promptly. The most drastic measure, replacing the damaged material, is too expensive to be used for more than a minor part of the total. Decay of timber due to rot is dependent on moisture and rot does not normally attack timber having a moisture content below about 20%. Timber in installed constructions such as doors and windows are exposed to attacks from rot during great parts of the year since it is exposed to moisture both from the inside air and the outside air. Rain water is of great importance for moistening the wood.

For a couple of years now attempts have been made, both with methods and agents, to prevent attacks in particularly exposed constructions or to prolong the lifetime of constructions already subject to fungal decay.

The methods which have been used till now are based on injection of preservative agents under pressure or on a diffusion treatment. In both methods holes are drilled close to the decayed or exposed parts and the preservative is then deposited in the holes. At the pressure-injection method the preservative is injected into the timber for an appropriate time and the hole is then plugged up. At the diffusion method the preservative agent is inserted in the whole, e.g. in an ampoule or a tablet and is slowly released into the timber and the hole is plugged. Final treatment, e.g. painting, puttying or other covering treatment, of the parts treated with preservative can then be carried out.

Organotin compounds such as TBTO and TBTN (tributyltin oxide and tributyltin naphthenate) are widely used for impregnation of window joinery and have also been used in the above described pressure-injection remedial treatment. These agents are oil soluble and are usually applied from a solution in white spirit. The agents have certain disadvantages as concerns fire hazards, smell, and bleeding of white spirit from the treated material.

The diffusion method is fundamentally based on a high moisture content in the wood for diffusion of the preservative agent to a sufficient

extent. The water soluble agents which hitherto have been used for this purpose, boric acid/borax and bifluorides, have certainly been satisfactorily distributed but as the agents are not fixed in the wood the effect has decreased rather rapidly.

When the moisture content is high growth conditions for the rot will exist again. According to the recently introduced diffusion method, concentrated solutions of organotin compounds have been encased in glass ampoules and these have been inserted in the holes and crushed when the holes are plugged. Organotin compounds are not soluble in water and since they also have a very low vapour pressure there is some doubt that a satisfactory distribution will be obtained by this method.

It has now been found that a combination of steps comprising forming of cavities, applying a wood preservative and post-treating in the form of covering is an efficient way of treating wood of the kind previously mentioned, i.e. wood, exposed to fungal decay or already decayed, in existing constructions such as mounted window frames and jambs, and of protecting this wood for a long term and considerably lengthen its life-time. In this combination of steps not only the application of a wood preservative to the timber is taken into consideration but also that the condition for growth of rot, the moisture, is removed to the greatest possible extent and that the moisture is prevented from re-entering. This is achieved by leaving the formed cavities, after the application of the wood preservative, at least partly open so that they form channels through which the moisture is ventilated. To prevent moisture from re-entering to the greatest possible extent the treated parts are thereafter provided with a covering of sheet metal or of plastic.

The present invention thus relates to a method for protective treatment of timber in existing constructions which method comprises forming of cavities in the timber, applying a wood preservative to the timber through the cavities, leaving the cavities open and thereafter covering the treated parts with a moulding or a profile.

Joinery of different kinds in buildings can be treated according to the present method. The method is particularly intended to be used for in situ treatment of door and window joinery which, for varying reasons, e.g. due to lack of protection originally or due to poor protection, design, lack of repair etc., has been decayed or is exposed to decay. As has been mentioned, rot will not attack if the moisture content is kept low. Door and window joinery in buildings is exposed to moisture both from the inside air and the outdoor air and also from the building itself. Rain water is of great importance for moistening the wood and it has been found that rot damage in windows most frequently occurs in the lower horizontal members of the external casement or frame. Other parts which are exposed are the joints and the middle jamb as water penetration is facilitated at joints. It is thus most important to treat the external parts and all the steps of the present method can be

carried out from the outside of the building, if desired, but just as well from the inside.

In a first step cavities are formed at the attacked or exposed parts, or in the region of these. The number of holes and their positions are decided with respect to the conditions in each case. Holes are drilled to a diameter which of course is adjusted with respect to the thickness and the width of the parts to be treated. Compared with what is common it is preferred that more holes and holes of smaller dimensions are formed to get as efficient removal of moisture as possible. For window joinery the diameter is suitably between about 3 and about 10 mm. According to the present invention the holes shall not be plugged or sealed in other manner after the application of the wood preservative but they shall function as channels through which the moisture which has furthered the rot attack can migrate out from the wood. On account of this it is preferred that the holes are drilled at an oblique angle to the surface and directed towards the damaged parts. An angle of between 45 and 80° is suitable. The holes will hereby pass through a greater volume of wood than if it is drilled at a right angle to the surface and the "chimney-effect" will be amplified. On vertical surfaces the holes should be directed upwards to avoid formation of pockets wherein moisture can accumulate. The depth of the holes should of course also be adjusted with respect to the dimensions of the treated material and also with respect to the presence of heartwood in the timber.

In the next step a wood preservative is introduced in the wood through the formed cavities. Although the previously mentioned diffusion process can be used in some cases it is preferred to inject the preservative under pressure as this process is independent of the moisture content in the wood for distribution of the agent and also as it gives a simpler process with respect to the preferred angle of the holes. Use of pressure-injection also means that agents which are fixed to the wood and thus give a prolonged effect can be employed. Known oil-soluble wood preservatives e.g. organotin compounds such as tributyltin oxide can be used, for example dissolved in white spirit. However, it is particularly advantageous to use agents which are fixed in the wood and which are soluble or dispersible in water. Such agents are for example known combinations of fatty acid/metal/ammonia and the so-called AAC-agents (alkyl ammonium compounds) which during the last few years have been more extensively used for wood preservation. The AAC-compounds are amines, salts of amines and inorganic or organic acids, for example fatty acids, and quaternary ammonium compounds which contain at least one higher aliphatic hydrocarbon chain. These types of compounds are particularly advantageous since they are effective not only against rot but also against mould and sapstain. The nitrogen present in the compounds results in a good fixing in the wood. Another advantage is that these types of compounds do

not give rise to discoloration of the wood and that the vapour pressure of the compounds is negligible and irritating vapours are thus not given off. Compounds of the AAC-type can be used as such or in combination with other suitable fungicidal agents, e.g. thiourea and guanidated amines. Particularly good results have been obtained with combinations of quaternary ammonium compounds, e.g. benzalkonium chloride, and guanidated amines. Organic solvents, such as white spirit, can be used as carrier but this is generally not desirable. It is preferred that the agents are applied in the form of water solutions or water dispersions having the desired contents of the active substance. As it is desirable to supply as little water as possible to the wood the agents can advantageously be dissolved in lower volatile alcohols, e.g. ethanol and isopropanol, lower glycols, e.g. ethylene glycol, or mixtures of these or mixtures of these and water, instead of in water.

The wood preservative is injected into the wood by means of suitable pressure-injection apparatus. The time for treatment is suitably around about half a minute to a minute or a couple of minutes depending on the type of wood, the amount of heartwood and sapwood respectively, the condition of the wood etc. The injected amount is suitably followed by means of a flow meter connected to the impregnation equipment. The pressure is adjusted with respect to the particular conditions and should usually be within the range of 0.1 to 1.0 MPa. The upper limit is principally dependent on the condition of the wood.

After the injection the parts in question can if desired be brushed with a hydrophobing agent, e.g. paraffin wax or alkyd resins. The holes are not plugged but are left with communication to the environment to permit release of the moisture.

As the last step of the present method the parts which have been treated according to the above are covered with a moulding or a profile to prevent that moisture will anew enter the wood. It is possible to use covering with sheet metal, e.g. aluminium or lacquered plate covering. With respect to method of operation and also with respect to wood preservation it is preferred to use plastic profiles. These can easily be produced in desired shapes and colours, there are no problems concerning attachment and they do not require any finishing treatment. The mouldings can be designed to be very tight and to give a good covering of joints. They can be fastened by nailing or gluing or, if they are designed with gripping means, by pressing into grooves in the support. The profiles are fastened to the support in such a manner that an air gap is formed between these and the wood and the gap should suitably have a depth of 3 to 8 mm. A profiled-section in plastic material can replace painting and other post-treatment of the in situ treated parts. The profiles can be made from weather resistant and colour fast materials such as PVC and ABS.

The present invention thus offers a method for in situ treatment of timber against incipient or

threatening rot attacks in a very efficient manner which is cost-saving with respect to the input of work and wherein both the actual funicidal treatment with wood preservative and the removal and continued prevention of climatic factors which further the decay have been considered. A particularly favourable effect is obtained when a combination of the steps previously described as especially suitable are used, namely forming of holes at an angle and directed upwards, use of per se water soluble or water dispersible wood preservatives which are fixed in the wood, preferably wood preservatives containing compounds of the AAC-type, and covering with profiles of plastic material. Windows and other joinery parts which have been treated according to the present method will not require repair for a longer period of time.

In practical tests 10 windows which had been attacked by rot and which had a moisture content of between 27 and 44 per cent were treated. The treatment according to the invention comprised drilling of holes, application of a wood preservative based on quaternary ammonium compounds and guanidine derivatives by pressure injection and covering with plastic profiles in such a manner that an air gap of about 6 mm was formed. The treated windows were inspected after six months and the moisture content was then measured to between 14 and 19 per cent, i.e. it was in all cases clearly below the limit for growth of rot. The treatment according to the invention thus resulted in an efficient removal of moisture and also efficiently prevented re-entering of moisture.

CLAIMS

1. A method for protective treatment of timber in existing constructions, characterized in that cavities are formed in the construction, that a wood preservative is supplied to the timber through the cavities, that the holes are left open and that the so treated parts are covered with a moulding or a profile.

2. A method according to claim 1, characterized in that the cavities are formed at an oblique angle to the surface.

3. A method according to claim 1 or 2, characterized in that the cavities are directed upwards on vertical surfaces.

4. A method according to claim 1, characterized in that the wood preservative is injected under pressure.

5. A method according to claim 1 or 4, characterized in that the wood preservative is an agent which per se is water soluble and is fixed in the wood.

6. A method according to claim 5, characterized in that the wood preservative is dissolved in a volatile lower alcohol or glycol.

7. A method according to claim 1, characterized in that the treated part is covered with a plastic profile.

8. A method for protective treatment of timber as claimed in claim 1, substantially as described herein.

9. Timber which has been subjected to a protective treatment by the method claimed in any one of the preceding claims.